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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/778,030	02/17/2004	Hiroshi Hamasaki	249025US2SRD	6187
22850 7590 03/13/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DINH, TUAN T	
			ART UNIT	PAPER NUMBER
			2841	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		03/13/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/13/2007.

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patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/778,030

Applicant(s)

HAMASAKI ET AL.

Examiner

Tuan T. Dinh

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 8 and 11 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 9, 10 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The indicated allowability of claims 7-8, and 11 is withdrawn. Rejections based on the newly cited reference(s) follow.

#### ***Claim Objections***

Claim 19 is objected to because of the following informalities: "the thermal coupling" is lack of antecedence basis. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5, 7-8, 11, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. ('407) in view of Nagesh et al. (U.S. Patent 5,585,671).

Regarding claims 1-3, Byers discloses an LSI package as shown in figures 1-4 comprising an LSI chip (10) mounted on an interposer (102), an interface module (111), and some other claimed elements (see the last Office action mailed on 07/21/06 from Examiner John Vigushin), Byers does not specific disclose a package structure (a heat sink) configured to hold the signal lines and the second coupling parts, the structure being mounted on the interposer and having space.

Nagesh shows a package in figure 1 comprising a package structure or a heat sink configured to hold a signal line of signal lines and mounted on an interposer (14) having a space.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a heat sink structure as taught by Nagesh employed in the LSI package of Byers in order to provide a cooling system and heat dissipation for the package.

Regarding claim 5, Byers discloses one of the first and second parts including a coupling pin \*314), and the other one of the first and second parts including insertion structure (316).

Regarding claim 7, Byers disclose the interface module and the interposer (111, 102) including a guide pin (314) and a guide hole (316).

Regarding claim 8, Byers discloses the interface module (111) further including third terminals.

Regarding claims 11, 15, Byers discloses the interposer having front and back surfaces, and the LSI (10) formed on the front surface, the first coupling parts (316) being arranged along two sides of the LSI.

Regarding claim 16, Byers as modified by Nagesh, that discloses a heat sink formed on and fixed on the surface of the interface module.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a heat sink as taught by Nagesh employed in the LSI package of Byers in order to provide heat dissipation for the package.

Regarding claims 17-18, Byers discloses the first coupling parts provided on the front surface of the interposer, see figure 4.

Regarding claim 19, Byers discloses in figure 4 that the first and second coupling parts being electrical connected by means of mechanical contact, see figure 4.

***Allowable Subject Matter***

3. Claims 4, 6, 9-10, and 12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 20-21 are allowed.

The following is an examiner's statement of reasons for allowance: neither the references cited nor the cited references disclose or render obvious in combination of the package having an interface module including optical waveguides which transmit output optical signals to outside and to receive input optical signals from outside, an optical element configured to convert the input optical signals from the optical waveguides to the electric signals, convert the electric signals to the output optical signals and guide the output optical signals to the optical waveguide, and interface integrated circuits configured to drive the optical elements, and second coupling parts electrically connected to the optical element, the second coupling parts being electrically connected to the first coupling parts by means of mechanical contact, respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-12, and 15-21 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reichard Dean can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read 'Tuan Dinh', with a long, sweeping horizontal line extending to the right.

Tuan Dinh

March 02, 2007.